

In the next specimen to which I would draw attention, a small (22 millims. long) female insect brought from Pegu by Mr. Kurz, and apparently allied to *Hestias* and *Oxyphilus bicingulata*, De Haan, the upper edges of the fore femora are sharply crested, but not so greatly expanded; the cephalic cone is bicuspid at the extremity, and armed with two pointed cusps on each side; the occiput presents behind each eye a pointed tubercle directed backwards; the face is carinate, the keel of the "facial shield" terminating above in a stout conical tooth; the two upper ocelli are surmounted by a pair of long and slender conical spines; the organs of flight do not nearly reach to the extremity of the abdomen; and the disk of the prothorax is armed with four sharp, erect, spiniform tubercles. From the analogy of *Hestias*, I confidently expect that the male will prove to have its head similarly armed with a tubercle. I have named this curious insect *Ceratomantis Saussurii*.

I also exhibit the two sexes of an insect captured, the female by Mr. Peal in the Naga hills, and the male by Dr. Cameron in the Bhutan Doars. In the former the head is provided with a long and slightly tapering foliaceous frontal horn, truncated at the apex, longitudinally obtusely carinate in front, and sharply crested behind, and nearly three times as long as the head is high; in the latter this great foliaceous horn is reduced to little more than a tubercle only about half as long as the head is high. I have named this insect *Phyllocrania Westwoodi*, notwithstanding that the prothorax has no foliaceous expansions.

Similar sexual differences may be looked for in *Phyllocrania*, *Parablepharis*, and *Sibylla*, the males of which are still unknown.

In the Phasmidæ we meet with apparently similar sexual differences; but in these insects the great reduction in size and thickness of body that has taken place in the males may well have effaced the horns and foliaceous lobes, which after all are generally relatively not very greatly developed in the females. We see the truth of this in the case of the genus *Phyllium*, wherein the foliaceous lobes of the abdomen and legs of the female are relatively very large, and those of the male are consequently by no means inappreciable, and in the case of *Lonchodes insignis*, in which in males more than ordinarily stout the cephalic horns reappear in rudiment though they have disappeared in slenderer individuals.

Prof. Wood-Mason also announced that he had ascertained by actual observation of living specimens belonging to several species that the femoral brushes are used by the Mantidæ to keep their eyes and ocelli in a functional condition, and that they are present in the young when these quit the egg.—*Proceedings of the Asiatic Society of Bengal*, August 1876.

*On Rhabditis stereoralis.* By M. BAVAY.

The Nematode discovered by Dr. Normand in the fæces of patients affected with Cochin-China diarrhœa, and provisionally named by me *Anguillula stereoralis*, may justly retain that designation; but it

closely approaches *Rhabditis terricola*, Dujardin, belonging to the genus *Leptodera* of Schneider, and the differences which separate it therefrom do not appear to me to be of generic value. The species only is new, and may be characterized as follows:—

Length of the adult ♀ 1 millim., width about 0·04 millim. Body cylindrical, slightly narrowed in front, much more tapered behind. Surface of the body smooth; transverse furrows become visible when the animal, emptied of its viscera, retracts itself strongly.

The mouth is formed by three, not very distinct lips, the unpaired one trilobate. The triquetral, muscular œsophagus occupies about one fifth of the body; it is divided into three portions—an elongated anterior part, narrower in front, and suddenly constricted behind into a sort of strait, which forms the median portion, which is elongated and precedes a posterior part dilated into an ovoid gizzard. Towards the middle of the latter a *y*-shaped spot may be distinguished; it indicates a cartilaginous valve or stomachal armature.

The intestine, inflated anteriorly into a stomach (*ventricule*), follows the œsophageal apparatus and terminates at a lateral anus near the base of the tail. Its walls are not very distinctly visible; but a pair of brownish yellow glands bound it on each side throughout its whole length. These glands are usually arranged in symmetrical masses. The whole of these organs are always more or less displaced in the female by the mass of ova.

The vulva is situated on the right side of the body a little above the middle. It leads into a uterus which is extended before and behind, and at maturity contains from twenty to thirty ova, more or less heaped together. These ova are at first of a horny brown colour, but afterwards become yellow and show the embryo. They are sometimes hatched in the uterms.

The female presents neither wings, folds, nor tubercles along the body.

The male, which is about one fifth less than the female, has a testis surrounding the mass of the intestine and the annexed glands, and terminating at an apparatus situated to the right at the origin of the tail, quite close to the anus. This penial apparatus is composed of two small horny spicules, which are recurved, inflated at their base, attenuated at the apex, and inserted upon the same transverse plane of the animal. A very delicate horny piece, situated a *little further back*, shorter and *broader* than the spicules, is recurved in the form of an umbilicus round their base. The tail is shorter than in the female, and is always turned to the right, like the spicules.

In copulation the male twists the posterior portion of his body round the vulvar portion of that of the female. The copulation appeared to me to be of short duration; the males are moreover much less numerous than the females.

This description applies only to the adult age of both sexes. At its escape from the ovum the digestive organs of the young worm are scarcely apparent, the intestine is not so long in proportion to the œsophagus, and the uterus is not visible.

It is when about half-grown that these worms are most frequently

met with; and it is in this state especially that the physician should be able to recognize them. At this time they are 0.33 millim. in length and 0.022 millim. in breadth. The œsophagus shows its characteristic form very well, resembling a pestle with two heads, one cylindrical, the other spherical. The intestine contains fatty globules, no doubt derived from the milk which constitutes the patient's diet. The uterus only appears in the form of a vesicle on the right side of the animal; the vulva is not yet open.

Five days suffice for the *Rhabditis stercoralis* to attain its complete development under favourable circumstances; hence its extreme abundance in the intestines of the patients.

In fine, this Nematode, very nearly allied to *Rhabditis terricola*, Duj., so well described by M. Péres, differs from the latter in its constantly smaller size, but especially in the form of the penial apparatus, which is moreover destitute of cirri and of the caudal hood.

Dr. Normand has met with this parasite in the stomach, in the whole of the intestine, in the pancreatic duct, the gall-duct, the hepatic ducts, and on the walls of the gall-bladder.—*Comptes Rendus*, October 9, 1876, p. 694.

*On the intimate Phenomena of Cell-Division.* By M. H. FOR.

In my memoir on the Geryonidæ I gave the first exact description of these phenomena, which previously had not been understood either by botanists or zoologists. All the principal points in those processes, such as have been since made known in more detail, were contained in the above-mentioned description. My observations were soon confirmed by the independent works, posterior to mine, of MM. Flemming and Bütschli; and my theoretical ideas have received valuable support from M. Flemming and especially from M. Bobretzky. I have now to communicate the results of the investigations I have just made upon segmentation in the Heteropoda, the Echini, and in *Sagitta*, which appear to me fitted to lead to the modification of the ideas accepted by most recent authors.

The centres of attraction appear, before each segmentation, at the two opposite poles of the nucleus, which is still absolutely intact, and seem to be a local fusion of the substance of the nucleus with the vitelline protoplasm, or perhaps an irruption of the protoplasm into the more fluid interior of the nucleus. To these two small aggregations of sarcode, rays of sarcode immediately run, some of them extending in the interior of the nucleus from one centre of attraction to the other, whilst the other rays diverge in the vitellus. I first described this formation of rays in Pteropoda; and M. Bobretzky has arrived independently at perfectly concordant results, in his remarkable memoir on the embryogeny of the Gasteropoda. M. Bütschli ascribes especial importance to the intranuclear filaments, to which he gives the name of *fibres*; whilst the filaments which lose themselves in the vitellus are regarded by him merely as *striae*. This distinction is founded especially on the different aspect of these two kinds of filaments, a difference which is quite naturally explained if we consider that the intranuclear filaments are immersed in a nearly fluid medium much less refractive than the proto-